Epidemiology of Pediatric Inflammatory Bowel Diseases in Southern Iran

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ABSTRACT

BACKGROUND

There are great variations in the incidence and prevalence of inflammatory bowel diseases (IBD) among different populations. Epidemiologic studies mainly come from North America and Europe. Studies from Iran are mostly data on the adult population from the northern region of the country.

METHODS

Medical records of 37 pediatric patients (≤ 18 years of age) admitted in the Pediatric Gastroenterology Ward at Nemazee Hospital, from 2001 through 2007 with final diagnoses of IBD were reviewed regarding data such as clinical manifestations and colonoscopic findings.

RESULTS

There were 19 boys (52%) and 18 girls (48%) with a mean age of 10.3±4.9 years (range: 2-17 years). Of these, 26 (70%) had ulcerative colitis (UC), 9 (25%) were diagnosed with Crohn's disease (CD), and 2 (5%) were labeled as indeterminate colitis (IC). Bloody stools (84.6%) and pallor (80.8%) were the most common features in UC whereas growth failure (88.9%) followed by pallor (77.8%) were the most frequent symptoms in patients with CD. The most frequent colonoscopic findings in UC and CD were erythema (80%) and ulcer (71.4%) respectively.

CONCLUSION

This study provides available epidemiologic data on pediatric patients with IBD from Southern Iran.

KEYWORDS

Ulcerative Colitis; Crohn's Disease; Children.

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INTRODUCTION

Inflammatory bowel disease (IBD) is a group of disorders characterized by chronic inflammation of the intestine that includes ulcerative colitis (UC), Crohn's disease (CD), and indeterminate colitis (IC). Environmental, genetic, and immunologic factors seem to have a role in the etiology of these groups of disorders; however the exact pathogenesis of the disease is still not clear.[1,2]

IBD has been usually described as having a bimodal pattern of inci-

dence; a main peak at 15-25 years of age and a second peak in the fifth and seventh decades of life.[3] It is estimated that 25-30% of CD and 20% of UC present in patients less than 20 years old, and only 4% of pediatric IBD are diagnosed less than 5 years of age.[4] Although the presenting symptoms and therapeutic options of IBD are mainly similar in both adults and children,[5] it should be kept in mind that children are not small adults. In fact, diagnosis of IBD in children seems to be very challenging for both physicians and health care providers when the disease does not present in its classic form.[6]

There are great variations in the incidence and prevalence of IBD among different populations. Epidemiologic studies on this concept mainly come from North America and Europe. At some time most physicians believed that IBD to be have low prevalence in some area of the world such as Asia, Africa, central and southern Europe, and Latin America; however, recently increasing rates of the diseases have been reported from these areas.[7]

Epidemiologic studies from Iran are mostly data on adult populations from the northern region of the country,[8-11] In consideration of the fact that pediatric presentations of the disease may differ from those in the adult population, and also that a clear diagnosis of IBD is essential in planning an optimal treatment strategy,therefore this study aims to determine the clinical features and paraclinical findings in pediatric patients with IBD in Southern Iran.

MATERIALS AND METHODS

In this retrospective study, medical records of 37 pediatric patients less than 18 years of age who were admitted to the Pediatric Gastroenterology Ward at Nemazee Hospital affiliated with Shiraz University of Medical Sciences, from 2001 through 2007, with final diagnoses of IBD were reviewed. Data included demographic characteristics;residence; age at diagnosis; clinical presentations (including both intestinal and extra-intestinal manifestations); duration of symptoms; paraclinical findings; and laboratory findings that included complete blood count, stool examination, erythrocyte sedimentation rate (ESR), C-reactive protein (CRP) and albumin; as well as colonoscopic, and pathological results. This data was gathered for all patients through completion of a previously designed form.

Criteria for diagnosis of IBD were based on a combination of history, endoscopic, histological, and radiological findings previously described by Griffiths et al.[12]

The standard range of laboratory work ups were according to age less than 6 months, 6 months to 6 years, 7-12 years, and more than 12 years of age, according to sex.

All patients and their families were informed of the research and gave permission to have their medical records reviewed. Study was approved by local institutional review board.

All collected data were entered into a computer database for analysis using SPSS software version15.

RESULTS

There were 19 boys (52%) and 18 girls (48%) with a mean age of 10.3±4.9 years (range: 2-17 years). Of these, 26 (70%) patients (14 boys, 12 girls) had UC with a mean age of 10.2±4.9 years, 9 (25%) patients (4 boys, 5 girls) were diagnosed as CD with mean age of 10.7±5.3 years, and 2 (5%) were labeled as IC (1 boy and 1 girl).

There were 2 (5.4%) patients who had positive family histories of the disease in their first degree relatives.

A total of 23 (63%) patients resided in urban areas and 14 (37%) lived in rural areas.

The most frequent clinical manifestations at the time of diagnosis are listed in Table 1. Bloody stools (84.6%) and pallor (80.8%) were the most common features in UC whereas growth failure (88.9%) followed by pallor (77.8%) were the most frequent symptoms in patients with CD.

There was an 11.2 month (2-18 month) gap between the beginning of symptoms and diagnosis of CD, but this gap was 10.7 months for UC.

Regarding laboratory findings, all 37 patients (100%) had a rise in ESR (mean ESR level:45.6 mm/hour),83.4% of the patients had anemia, 55.2% had hypoalbuminemia, and 54% had a positive CRP.

Table 1: **Common clinical manifestations of pediatric patients with IBD in Southern Iran.**

Intestinal manifestations	UC	CD
Diarrhea	16 (61.5%)	6 (66.7%)
Bloody stool	22(84.6%)	3 (33.3%)
Tenesmus	3 (11.5%)	0
Abdominal pain	12 (48%)	5 (55.6%)
Perianal abscess	0	1 (11.1%)
Perianal fistula	0	1 (11.1%)
Extra-intestinal manifestations		
Pallor	21 (80.8%)	7 (77.8%)
Fever	12 (46.2%)	5 (55.6%)
Growth failure	13 (50%)	8 (88.9%)
Oral aphthus lesions	0	5 (55.6%)
Clubbing	0	4 (44.4%)
Arthralgia	2 (7.7%)	2 (22.2%)
Erythema nodosum	2 (7.7%)	1 (11.1%)
Primary sclerosingcholangitis	1 (3.8%)	0

The most common colonoscopic finding in CD was ulcer in 71.4% of cases followed by erythema (42.9%), fragility of the mucosa (28.6%) and congestion in 28.6%. Erythema was found in 80% of UC patients as the most frequent colonoscopic finding; other findings included congestion (32%) and bleeding (20%).

All patients with CD were investigated for upper gastrointestinal involvement by esophagogastroduodenoscopy and upper gastrointestinal series with small bowel follow through. Only one patient had an enteroenteric fistula. The cases of UC were not evaluated for upper gastrointestinal involvement.

In Table 2 the common pathological findings in UC and CD are separately reported.

All patients received different combinations of 5-ASA, prednisolone, azathioprine, and metronidazole with relative good conditions, with the exception of 2 cases. The first case was an adolescence girl with UC who was unresponsive to medical therapy and underwent a laparoscopic total colectomy. The second case was a patient with CD with severe growth failure who expired with sepsis.

Table 2: **Common pathological findings in IBD pediatric patients in Southern Iran.**

	UC	CD
Active colitis	19 (73.1%)	3 (33.3%)
Chronic colitis	7 (26.9%)	4(44.4%)
Crypt abscess	8 (30%)	0
Lymphoid follicle	2 (8%)	0
Granuloma	0	2 (22.2%)

DISCUSSION

In this study we reported the clinical features and paraclinical findings of pediatric patients with IBD in Southern Iran. As the Pediatric Gastroenterology Ward at Nemazee Hospital is the referral center for gastrointestinal disease in Southern Iran, we can consider these data representative of the Southern region of the country. Here, we compare our study with similar epidemiological studies worldwide, with particular emphasis on the pediatric population.

Of the entire IBD pediatric patients in a 7-year interval, we found UC to be more common than CD (70% vs. 25%).This is comparable to a study from Tehran (Northern Iran)by Fallahi et al. which also reported UC to be more common in their pediatric patients.[10] However these findings contrast those reported by other studies worldwide, which have reported a higher diagnosis of CD compared to UC in pediatric patients.[13-15] These differences may result from the small number of our cases or hospital-based nature of this study.

In our study the numbers of patients with IBD were similar in males and females (M/F ratio: 19/18).This agreed with other studies that have also reported the overall M:F ratio in patients with IBD to be 0.99.[16]

We reported the mean age at diagnosis of the disease to be 10.3±4.9 years, which was similar in both UC and CD. This was comparable to reports

elsewhere.[13,14,16]

We found a positive family history in only 5.4% of our patients which seemed less than results from other studies.[16-18]

There were 63% of our IBD patients from urban areas; this was similar to the epidemiological study performed on adult IBD patients from Northern Iran that reported the vast majority of patients resided in urban areas.[9]

The most common presenting feature in our patients with UC was bloody stool.Numerous other studies worldwide have also reported bloody stool as the most common symptom in UC;[13,16] however others have stated manifestations such as abdominal pain[10,19] or diarrhea[14] as the dominant presentation in UC.

Our patients with CD mostly presented with growth failure, diarrhea, and abdominal pain.However in our literature search from elsewhere we found abdominal pain reported as the most common presenting feature in CD.[13,14,16]

Regarding extra-intestinal manifestations, both patients with UC and CD had pallor, fever, and weight loss; other studies showed weight loss,[13,16] anorexia,[14] and fever[10] as the most common extra-intestinal signs and symptoms.

The most common colonoscopic findings in CD were ulcer, whereas in UC it was erythema, with histologic features of chronic active colitis in both groups, which was similar to previous reports.[20]

Regarding laboratory data, all of our patients had a rise in ESR and the majority (83.4%) had anemia. Castro et al. have reported anemia in only 24% of their pediatric patients in Italy.[16] This difference may result from the higher prevalence of malnutrition in our region.

This study provides available epidemiologic data on pediatric patients with IBD from Southern Iran, which could be helpful in better diagnosis and prompt treatment of these patients.However it suffers from limitations such as the small number of patients and hospital-based nature of the study. Thus, we recommend performing the next population-based study with larger numbers of patients.

CONFLICT OF INTEREST

The authors declare no conflict of interest related to this work.

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